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Chemicals risk assessment and risk management

Some examples of current global work

Serbia workshop

Geneva - 14 September, 2023

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Risks…

Rotterdam Convention

Minamata Convention

PRTR

Chemical Accidents

GHS

Stockholm Convention
PCBs and other POPs

Basel Convention

Contaminated sites

Risks…

Chemicals placed on the market

Industrial chemicals

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Basics

The definition

RISK = HAZARD x EXPOSURE*

*vulnerability

Hazard: Ability to cause damage (intrinsic property, constant, universal)

Exposure: Contact of a population or individual with a chemical agent.

Risk: Probability of harm/adverse effect occurring / It depends on conditions of use, it is variable, local

Risk analysis vs risk assessment

Risk analysis

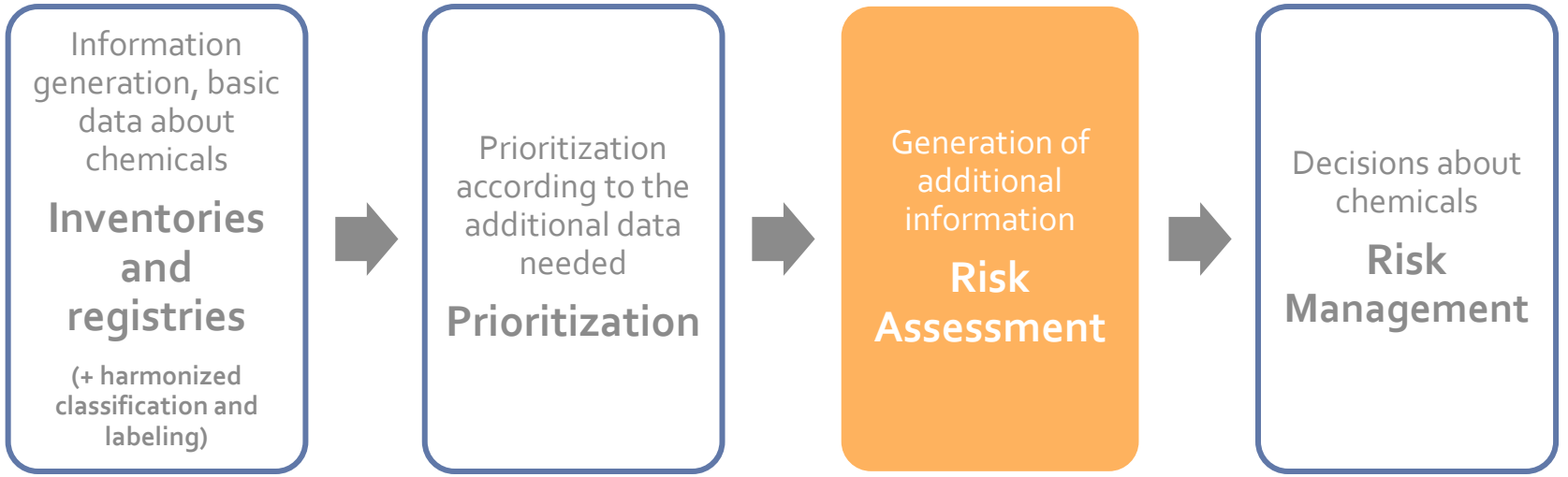
Includes three elements : evaluation of risks, management of risks and communication of risks

Risk assessment

Scientific analyses that results on quantitative or qualitative expressions of the probability of harm associated with exposure to a chemical

Source: World Health Organization Guide (WHO, 2021) - modified

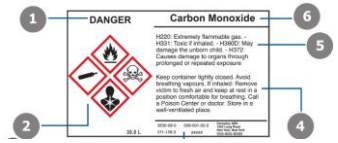
The regulatory process



Objective of this process

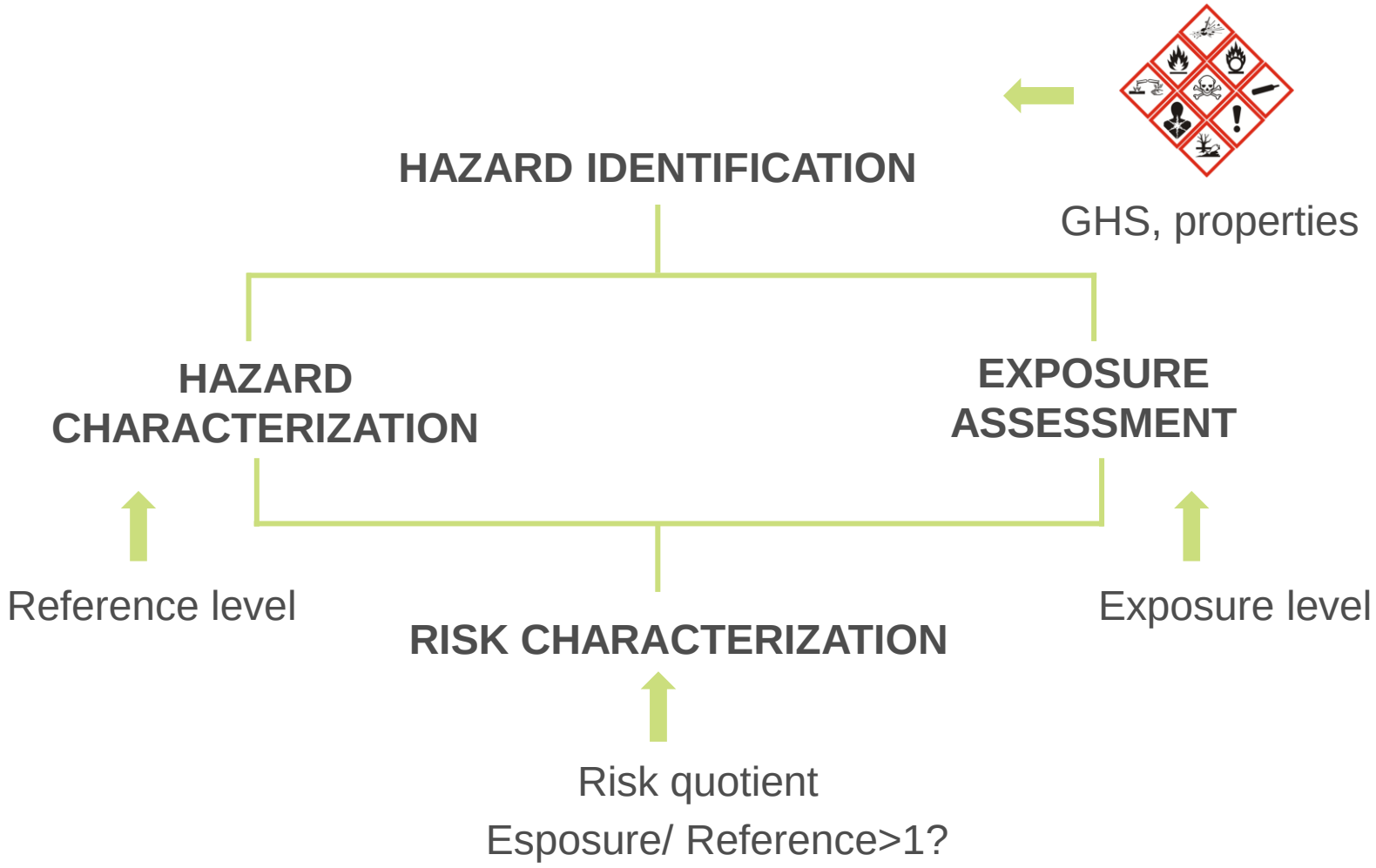
Severity: − (top) to + (bottom)

Risk	Risk management
The health of users is threath because the users do not have **enough information to use the product**	**Instructions are given for safe use**: classification and communication through labelling and safety data sheets
The use of products **massively generates hazardous waste** difficult to manage for its hazardous substance	**The use** of certain hazarous substances in the products **is restricted**
The uses of an specific substance that is very hazardous have **benefits that oppose the risks** they represent	An **authorization prior** to placing on the market is required
Same case above, but a safer **alternative to the hazardous substance exists** and represents minimum risks for the same applications	The **sale and purchase** of the substance **is prohibited**

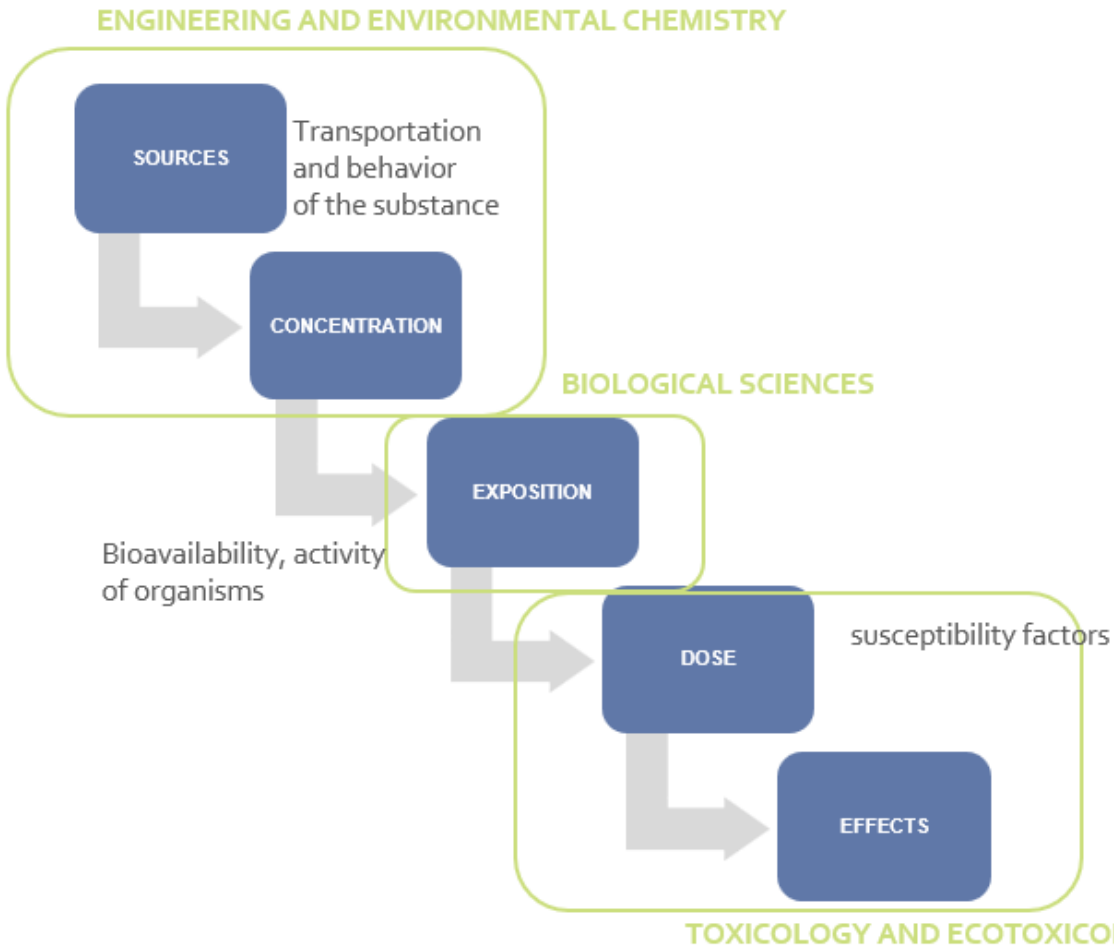


Source: Adaptation of material from KemI (2018)

The steps of a risk assessment process



Related disciplines



Adapted from Dr. Higgings , CEEN580 - Colorado School of Mines

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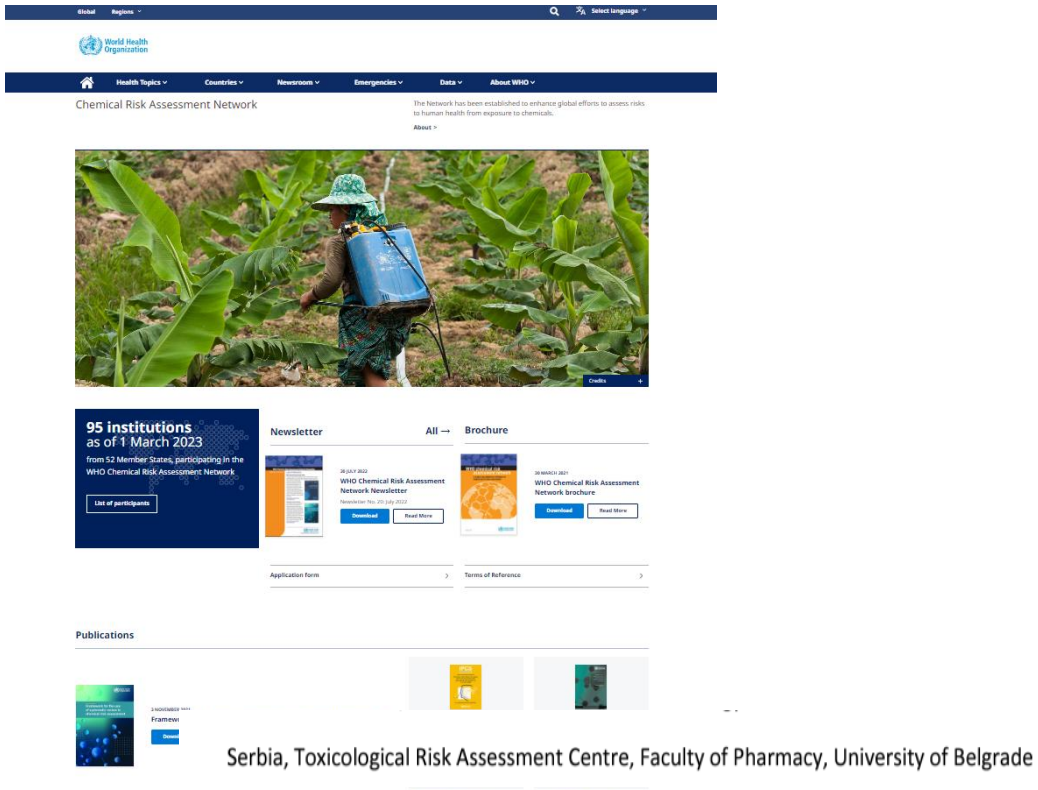
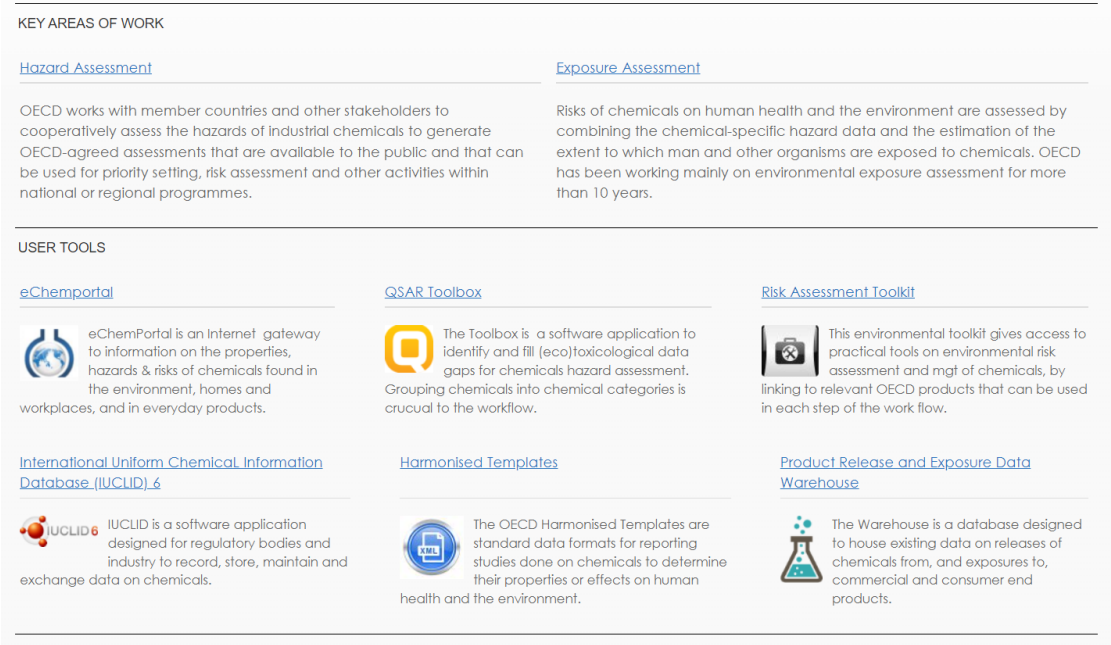
Global efforts towards harmonization

Harmonized methodologies

Some examples



WHO Network on Risk Assessment of Chemicals
Created in 2014, this group contributes significantly to the development of harmonized approaches and approaches for risk assessment
https://www.who.int/groups/chemical-risk-assessment-network



OECD
OECD assists countries in developing and harmonising methods for assessing risk to human health and the environment, including methodologies for hazard and exposure assessment.
https://www.oecd.org/chemicalsafety/risk-assessment/

New practical training tools and methodologies

Some examples

Hybrid Course:
Fundamentals of prioritization and risk assessment of industrial chemicals
for Latin America and the Caribbean

RED INTERGUBERNAMENTAL DE QUÍMICOS Y DESECHOS PARA AMÉRICA LATINA Y EL CARIBE

ONU programa para el medio ambiente

KEMI Kemikalieinspektionen

Multisectoral and technical working groups

KEMI/UNITAR
Free online courses

UNITAR
Free Platform

Final thoughts

- Need for more staff & opportunities of joint work with Academia
- Preparation of Academia in regulatory toxicology and ecotoxicology
- In summary: multisectoral participation

Some references and acknowledgements

- Course on Fundamentals of prioritization and risk assessment of industrial chemicals for Latin America and the Caribbean (UNEP/KEMI/BC Regional Center in Uruguay)
- KemI materials (ITP)
- World Health Organization Guide – Health Risk Assessment Toolkit (2021)
- ICCA/LARCF VWG on the sound management of industrial chemicals

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Thanks!

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